

- 19 -

CLAIMS

1. Process for producing a low-attenuation optical fiber, comprising:
 - producing a soot core preform by chemical deposition on a substrate;
 - removing the substrate from the soot core preform, thereby forming a
5 central hole along the soot preform;
 - drying and consolidating the soot core preform to form a glass core preform; and
 - stretching the glass core preform;wherein the step of drying and consolidating comprises reducing the
10 diameter of the central hole and the step of stretching comprises closing the central hole.
2. Process according to claim 1, wherein the step of reducing the diameter of the central hole comprises reducing the pressure inside the central hole and subjecting the glass core preform to a temperature sufficient to
15 soften glass.
3. Process according to claim 1, wherein the diameter of the central hole at the end of the drying and consolidation step is between about 0.05 mm and 0.4 mm.
4. Process according to claim 1, wherein the diameter of the central hole at
20 the end of the drying and consolidation step is between about 0.05 mm and 0.2 mm.
5. Process according to claim 1, wherein the diameter of the central hole at the end of the drying and consolidation step is at most 1:10 of an initial diameter of the central hole.
- 25 6. Process according to any of claims 1-5, wherein the step of drying and consolidation is performed in a furnace and includes drying the soot core preform at a first temperature, consolidating the de-hydrated soot core preform at a second temperature higher than the first temperature and subjecting the consolidated core preform to a third temperature higher
30 than the second temperature for reducing said diameter.

- 20 -

7. Process according to claim 1-5, wherein the step of drying and consolidation is performed in a furnace including a first zone and a second zone, and comprises the following sequence of steps:
- 5 • drying the soot core preform in the first zone,
 - moving the dried soot core preform from the first zone to the second zone,
 - consolidating the soot core preform in the second zone,
 - 10 • moving the consolidated core preform from the second zone to the first zone,
 - reducing the pressure in the central hole,
 - increasing the temperature in the second zone to a temperature sufficient to soften glass,
 - moving the consolidated core preform from the first zone to the second zone,
 - 15 • keeping the consolidated core preform in the second zone until the diameter of the central hole has reduced to a desired value, and
 - removing the consolidated core preform from the furnace.
8. Process according to claim 2 or 7, wherein said pressure is reduced to at most 200 mBar.
9. Process according to claim 8, wherein said pressure is reduced to at most 100 mBar.
10. Process according to claim 1, wherein reducing the diameter of the central hole comprises subjecting the glass core preform to a temperature between about 1495 °C and 1540 °C.
- 25 11. Process according to claim 1, wherein reducing the diameter of the central hole comprises subjecting the glass core preform to a temperature sufficient to soften glass for a time comprised between 1 h and 3 h.

- 21 -

12. Process according to claim 1, wherein the soot core preform has a core radius and an external radius, the ratio between the core radius and the external radius being lower than 0.4.
13. Process according to claim 7, further comprising fitting a low-melting
5 temperature member to a lower end of the central hole glass before the step of drying, and wherein reducing the pressure in the central hole comprises extracting gas from the central hole from an upper end thereof.